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AUTHOR Senesh, Lawrence
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ABSTRACT

The basic problem in training teachers (teaching them what makes social institutions tick and how to relate this knowledge to present and future needs of children) has not been solved by teacher training institutions. The author's plan for a one-year social sciences training program emphasizing the project approach may provide a solution. Its primary objective is to train teachers in the ways of knowing. The program consists mainly of lectures on the structures of economics, political science, sociology and anthropology. These are followed by laboratory sessions applying the fundamental ideas of each discipline in various teaching situations to give students experience with teaching strategies "best suited to their particular skills and temperaments." The themes of the laboratory sessions are: social reality, problem solving, analytical tools, K-12 grades, and multi-disciplinary (except for economics). Orientations are: time, space, systems, and future. Completing course as a whole are curriculum conferences emphasizing creativity. (DJB)

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ISSUES IN TEACHER EDUCATION: A Social Scientist's View

by

Lawrence Senesh
University of Colorado

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On the 20th of July, 1969, the crew of Apollo 11 landed on the moon. In the midst of celebration, this unique achievement launched a heated dialogue between the scientists and engineers. The scientists claimed that they did not get the proper credit they deserved for this achievement. The engineers claimed the credit for themselves. Little did they know that the credit for the landing on the moon goes neither to science nor engineering, but to knowledge at large. What were some of the elements of this project?

According to Peter Drucker, the computer was not the sole achievement of engineers. The root of this complex machine goes back to the symbolic logic founded by Bertrand Russell and Alfred North Whitehead. The impetus for the development of the first computer did not come from electronic engineers, but from the world-famous mathematician, John von Neuman.

The material which was used to build the Apollo 11 spacecraft was not created by nature; it was the achievement of men in science and mathematics. Their objective was to create materials which could withstand heat, shock, and other conditions in space but unknown on earth. They went to work to develop a specific microstructure of atoms and molecules to meet such conditions.

The astronauts are the products of many disciplines. Medical science prepared them physically. Engineers prepared them mechanically. Scientists prepared them scientifically. Psychologists prepared them psychologically. And one could even say that theology prepared them theologically. The transaction of a whole gamut of personal, social

and scientific experiences shaped the characters of the astronauts and gave them the physical and psychological competence needed to reach the target.

The project challenged the minds of many political scientists and raised questions concerning new political relationships between the big nations on the earth. The project challenged the minds of many economists and raised questions about the rationale of allocating the huge amounts of resources for such an adventure. The Apollo project was also the achievement of system specialists who coordinated the millions of transacting parts from the tiniest electronic parts in the spaceship to the vast network of tracing stations around the earth.

The Apollo mission is the off spring of a project vision which is the interaction between individuals, society, machines, institutions, scientific data, and hunches. Thinking in terms of projects and calling upon all knowledge relevant to the competition of these projects should be the objective not only of the Apollo project. It should also be the objective of education. If this be the objective of education, then we must honestly admit that the present education system is obsolete. In our present educational system, subjects are taught in isolation boxes. In our present educational system subject matter is taught with little or no concern for issues in the real world. We should be grateful to today's youth who demand that we teach them relevant knowledge. If education is to help save the world from destruction, then thanks are due the youth who are

demanding a change from instruction which gets farther and farther away from reality. Miraculously, the need to relate curriculum material with real life is being met in the primary schools. Today in the primary grades a revolution is in progress. Primary school teachers are increasingly aware of the potentially meaningful experience of children. They hear primary school children talking about riots. The children ask teachers why people fight each other. The children ask why students revolt on the campuses. They ask why mule trains are dispatched from Mississippi to Washington, D. C. Primary school children have opinions about adults who oppose black and white children learning together. Children are exposed today to the successes and frustrations of society. This exposure comes through their direct experiences, through the movies, through television, and radio. Viet Nam or Mississippi, New York City or Chicago, the moon or the African desert: these pictures invade the nurseries of the children. All these experiences generate feelings. All these experiences inspire questions which want answers. The new elementary school curriculum attempts to meet the newly discovered needs of the children. While this revolutionary trend in the elementary grades is developing, the teacher-training institutions are not moving ahead. It is sad that the teacher-training institutions have not been a part of this exciting revolution in the elementary classrooms. Why has this happened?

1) The school of education on most campuses surround itself with a Chinese wall. The school of education on most campuses is a

closed system. Few of them maintain a dialogue with the knowledge departments. A closed system which has little feedback of new ideas is static.

2) The knowledge departments on the university campuses do not identify themselves with the cause of education. Very often same faculty members who criticize public school teachers for their "incompetence" also refuse to cooperate with the school of education to improve teacher-training programs. As for departments of the social sciences, they too neglect to work with the teacher-training institutions on programs which would help future teachers relate societal phenomena to the classroom.

3) Teacher-training institutions offer a wide selection of models in training teachers for subject matter competence. None of these models has too much promise.

The first model is history and geography oriented. There is nothing wrong with using history and geography as an intellectual framework. But it is highly inadequate to teach only a time and spatial orientation to life and neglect the knowledge of economics, political science, sociology, anthropology, and psychology which phenomena shape these two dimensions of life. The study of history and geography without the social science disciplines will not help children understand the economic rationale underlying slavery; will not explain why farmers demanded cheap money; why so many Americans took off for the West to find gold; why the early settlers "wasted land"; or why the economic insecurity of Americans has increased with increasing cash income. The history and geography model could

be called the "false pregnancy model." It is full of promise without delivering anything.

The second model of teacher-training is based on narrow specialization. Many teacher-training institutions offer areas of specialization, but they drive the future teacher into a very narrow channel. The student's time is monopolized by one academic department at the expense of a broader intellectual experience. For example, the student who majors in anthropology must take so many courses in anthropology that he will graduate from college with little understanding of the economic or political world. The social science departments compete for the student's body and time. Some social science departments in teaching their disciplines, demonstrate a "rigorous disciplinary approach." Often these departments frighten education majors away. The following question was directed to a senior economist in the economics department at a major university: "How many students from the school of education major in economics?" He answered proudly: "Very few come to us. We frighten them to death." This narrow specialization model could be called the "tight rope model."

The third model of the teacher-training program is based on the exposure of students to a series of introductory courses. For example, in many teacher-training institutions, the student does not need to take more than one or two semesters of economics. Since most introductory economics courses are two-semester courses, the students taking half of the courses may end with some knowledge about the operation of the market, but no knowledge of the operation of the economic

system at large. But this is not the worst. Most of the introductory courses are unimaginative courses. During the semester a desperate rivalry goes on between time and all the chapters of the textbook. Hundreds of pages are crammed down students' throats without economic theory ever being related to real life or, without the subject matter ever being related to the needs of the classroom. Most of the future teachers who complete this series of introductory courses leave the classrooms with deep wounds. They wonder the rest of their lives: "Was the trip necessary?" This model, based on the quick exposure of students to much knowledge, justly could be called the "machine gun model." When the students have such a meager input by many knowledge departments, why should anyone expect a miracle from the students or from the school of education. One cannot expect students to translate "knowledgeless knowledge" into the curriculum. There is nothing to translate. If by some strange accident, the students have received knowledge, nobody has shown them how to use this knowledge in the classroom. The segregation between the black and white children in Mississippi is less severe than the segregation between the content and method classes.

The problem of teacher-training then is two-fold:

1) How to expose future teachers to knowledge of what underlies society.

2) How to build a bridge between this knowledge and the present and future needs of our children.

To move toward the solution of these problems, a design for a social science training program is submitted as a part of the total teacher-training program. This design may take the teacher-training in the

right direction. Although this proposal is a one-year program for the sophomore year, there is no reason why this design could not be expanded over a four-year program. The program is now limited to a one-year program because in this way the first step can be taken without severe dislocation. It is hoped, however, that after this design is tested, it can be expanded and it can replace many of the content and method classes.

The new design has the following characteristics:

1) It offers a dynamic interaction between knowing and the ways of knowing. This means that the future teacher should always be aware that assimilation and dissemination of knowledge are two sides of the same coin. As one relates the frontier of knowledge to the experiences of elementary school children, the thinking process becomes clearer. To people who ask, "Is it not difficult to write for elementary school children?" The answer is: "It is not difficult to write for them, it is difficult to know enough." Teaching elementary school children demands a tremendous intellectual integrity. Teacher-training must emphasize that the secret of teaching is not simplifying knowledge at the expense of accuracy; rather, it is translating knowledge accurately and relating it meaningfully to children's experience.

2) The teacher-training program should be K-12 oriented. The teacher must see in the first grader the future twelfth grade student. The teacher must be trained to see the child not as a still photo, but as a moving picture. Experience shows that primary school children's experience is potentially so meaningful that the fundamental analytical

tools of social science can be related to children's experience. The teacher must be trained how to teach these fundamental analytical tools from K-12 with increasing depth and complexity. Children can be taught price theory in the first grade if it is related to their rich experience in choice-making. These children then should be exposed to price theory in succeeding grades in the multitudes of situations the growing child experiences.

Every human being is committed to values and so the first grader can be made aware of the ideas in which he believes and how these ideas affect his daily behavior. After the first grader has been made aware of his values, he can be shown how such values operate in society, how they may lead to conflict and how the conflict may be resolved.

The first grader can be made aware that as a member of a family he is a member of a political unit. In the family, authority is recognized, decisions are guided by values of the family, and decisions are binding. The recognition of the family as a political unit opens the way for discovery of the structure of political systems in later grades. Teachers should be able to relate fundamental ideas to the child's experience. They should be able to proceed with this relationship as the child matures.

3) The teacher should develop skill in using many motivation devices. Every class is made up of children with different economic and social backgrounds. Teachers should be able to make full use of these differences of background in the teaching situation. This means that the teacher has to learn to be intellectually honest. The teacher should not shy away from using as a take-off for a teaching unit the poverty march to Washington, the protest against the segregation of a neighbor-

hood, or the visit to a slum area. Training in intellectual honesty contributes not only to a sound relationship between children and teacher, It also contributes to the mental health of the teacher.

4) The purpose of intellectual honesty is to make children aware of man's intellectual power to solve problems. The purpose of teacher-training is to train teachers how to use knowledge to understand and to try to solve problems. This is the essence of the project approach. How can teachers be trained for the project approach? The course is divided into alternate blocks of lectures and laboratory sessions. The block of lectures lengthens as the sessions grow increasingly multi-disciplinary. The first laboratory session is three weeks long. All other laboratory sessions are four weeks long. Emphasis in the one-year program is on translating analytical tools into classroom situations.

Creative thinking is the foundation of the program. To reward creativity, the entire program culminates into a curriculum conference to which other members of the faculty and student body are invited. During this conference the most creative teaching practices developed during the year may be presented and evaluated.

The program starts with an introductory lecture on the need for structuring knowledge. The structure of a social science discipline is made up a set of analytical tools related to each other in a system. The structure is neutral in its character. It is not related to any one grade. It is made up of a collection of ideas which can be plugged into the children's experiences at different grade levels.

After the introduction, two weeks are devoted to the presentation of the structure of knowledge in economics. (See Chart I) After the fundamental ideas of economics have been presented, a three weeks laboratory session follows. In the laboratory session the fundamental ideas of economics are applied in various teaching situations. This practice tries to accomplish two objectives. The teacher is brought in contact with students in various situations. Sometimes the teachers encounter first grade children; sometimes, they encounter 4th grade children; sometimes the teachers encounter children from poor backgrounds; sometimes from well-to-do backgrounds; sometimes children from Appalachia; sometimes children from Indian reservations.

The laboratory session attempts to offer teachers different teaching strategies suited to the particular skills and temperaments of the teachers. It is often said that the best teachers are those who are born-teachers. Is this statement a commentary of the state of our teacher-training? We ought not to improve the quality of teachers by relying entirely upon nature. Teachers should be given a wide choice of many teaching situations in the application of analytical tools so that they may choose strategies which complement their innate faculties. Guided by these general principles, the teachers in the laboratory sessions may practice applying the analytical tools in the following situations:

1. They will be applied in real life situations. These life situations may be reconstructed through true, taped stories told by children, through the presentation of television programs which children may have watched, or family experiences to which the child may have been exposed.

2. The fundamental ideas will be applied in problem-solving situations. The teacher may practice how a real life situation can be translated into a significant social problem. For example, the child may talk about the poverty march. The future teacher should know how to translate the child's observation into the social problem of poverty. She should learn how to break down this social problem into its components; symptoms of the problem, aspects, definitions, scope, causes, and solution of the problem. She should learn to use primary sources in measuring the problems. She should be able to find various private or public proposals for the solution of the problem.

3. The fundamental ideas should relate to the social problem under investigation. The future teacher should know that the poverty problem necessitates understanding employment theory. Understanding the farm problem necessitates understanding price theory. The future teacher may practice selecting and mustering the relevant analytical tools for the social problem.

4. The fundamental ideas should be related throughout the entire K-12 curriculum. The future teacher should learn, for example, how to apply price theory to the first grader's experience. And he is already aware of prices. The first grader is already preoccupied with choice-making. The teacher must also learn how to apply price theory to the experience of the 12th grader whose horizon is far broader than the problem of individual choice-making.

5. The fundamental ideas of economic knowledge should be related to the dimension of time. The passage of time has to be developed systematically starting in the first grade. One way to do this is to relate passage of time to the passage of generations. Assuming that

generations can be identified with twenty-five years, children can understand that our nation was born about eight parents ago. In the same way, children may be able to understand that the city of Babylon was built one hundred and sixty parents ago. There are many different ways to make children aware of the passage of time and how it affects ideas and knowledge.

6. The fundamental ideas should also be related to spatial dimensions. For example, teachers should be able to use the principle of division of labor to explain to classes at various grade levels how this division of labor has been shaped by such geographical forces as differences in climate, in soil, in the distribution of human and non-human resources over the earth.

7. The fundamental ideas should be related to social systems. (fig. 5) Teachers should learn to look upon the family, the neighborhood, the city, the nation and the world as systems. Various parts of a system interact causing changes and bringing the system toward a conscious or unconscious equilibrium. For example, the teacher should be able to recognize the city as a system where the various parts, such as the transportation sub-system, the legal sub-system, the school sub-system, the housing sub-system, and the water and sewage sub-systems interact as fish, frogs and seaweed interact in a pond. Teachers should be able to understand that the interacting parts of the system in the city can be designed so as to achieve a goal or goals that the city planners have identified. Discovering in society these various systems help the teacher and the children to develop a new vision which enables them

to see social phenomena, not in isolation from each other, but in an interrelationship.

8. The fundamental ideas should help the teacher become future oriented. The future teachers should be able to envisage the world of tomorrow since this is the best assurance against obsolescence of teaching. The rural teacher should be able to envisage the future needs of the rural child who, with all probability, will leave the rural community for the city. The teacher should practice how to project in the rural classroom the many needs of the future urban citizen. Students will also receive in the laboratory articles written by academicians dealing with new theoretical notions. The teacher has to practice how these new theoretical concepts can be related to a child's experience. This is the best assurance of closing the gap between scientific progress and curriculum. These are the themes which will be practiced in the laboratories. The class may be divided into four laboratory committees. Each committee will study in depth two themes in any one laboratory session. The committee assignments should be rotated among the four laboratory sessions. In this way, each student will be exposed to all eight themes.

The first session deals exclusively with the fundamental ideas of economics. (fig. 1) Its laboratory session lasts three weeks. The second session is a three-week lecture session on the fundamental ideas of political science. (fig 2) The fundamental ideas of political science are followed by a four-week laboratory session. The teachers of this second laboratory session work on the same eight themes as in

the first laboratory session; the only difference now is relating these themes to the fundamental ideas of political science. In the second session, a ninth theme is added: the multidisciplinary orientation. Here students practice how to discover the different social aspects of the social problem. For example: What is the economic aspect of poverty? What is the political aspect of poverty?

In the third session, the fundamental ideas of sociology are presented. (fig. 3) The application of the now nine themes may be practiced in the sociology laboratory session. In the next session, the fundamental ideas of anthropology are presented. (fig. 4) This laboratory session will show the students how the economic, political, sociological and anthropological aspects bear upon the problem. In every laboratory session, students will study how the nature of the problem changes history and how the problem is shaped by geographical forces.

After the four lectures and laboratory sessions, the students are ready for the culminating conferences. In these, the teachers learn professional behavior. They are encouraged to identify themselves with the professional community. They should think of themselves as curriculum builders. Often, classroom teachers are unaware of their role as curriculum builders. Many of them have the notion that this is the job of school administrators. Making teachers aware of their relationship to the educational fraternity outside of the classroom gives the teacher self-confidence and professional pride.

Today knowledge has tremendous power. Once upon a time men of knowledge had no power. They occupied ivory towers. Today, politicians, statesmen and governments listen to scientists and social scientists. Their power is increasing and their influence may become awesome. As their political power increases, society must build a countervailing power. This countervailing power is made up of people who are competent to understand the scientists recommendations, and how these recommendations affect society. Whether or not people will be able to participate in the democratic process in a knowledge-oriented society, depends upon the school system and so on teacher-training. Universities must develop a new attitude toward teacher-training. They must give up their indifference toward the teacher-training program. They must stop being the hot bed of cold feet. The universities must accept the belief that ways of knowing are as important, if not more important, than the discovery of knowledge. Universities must clear the channel of communication between the knowledge department and the education department. If a constructive communication system is established between expanding knowledge and the teaching of this knowledge, there will be an advance not only in teacher-training but inquiry and learning at large.

Figure 1
FUNDAMENTAL IDEAS OF ECONOMICS

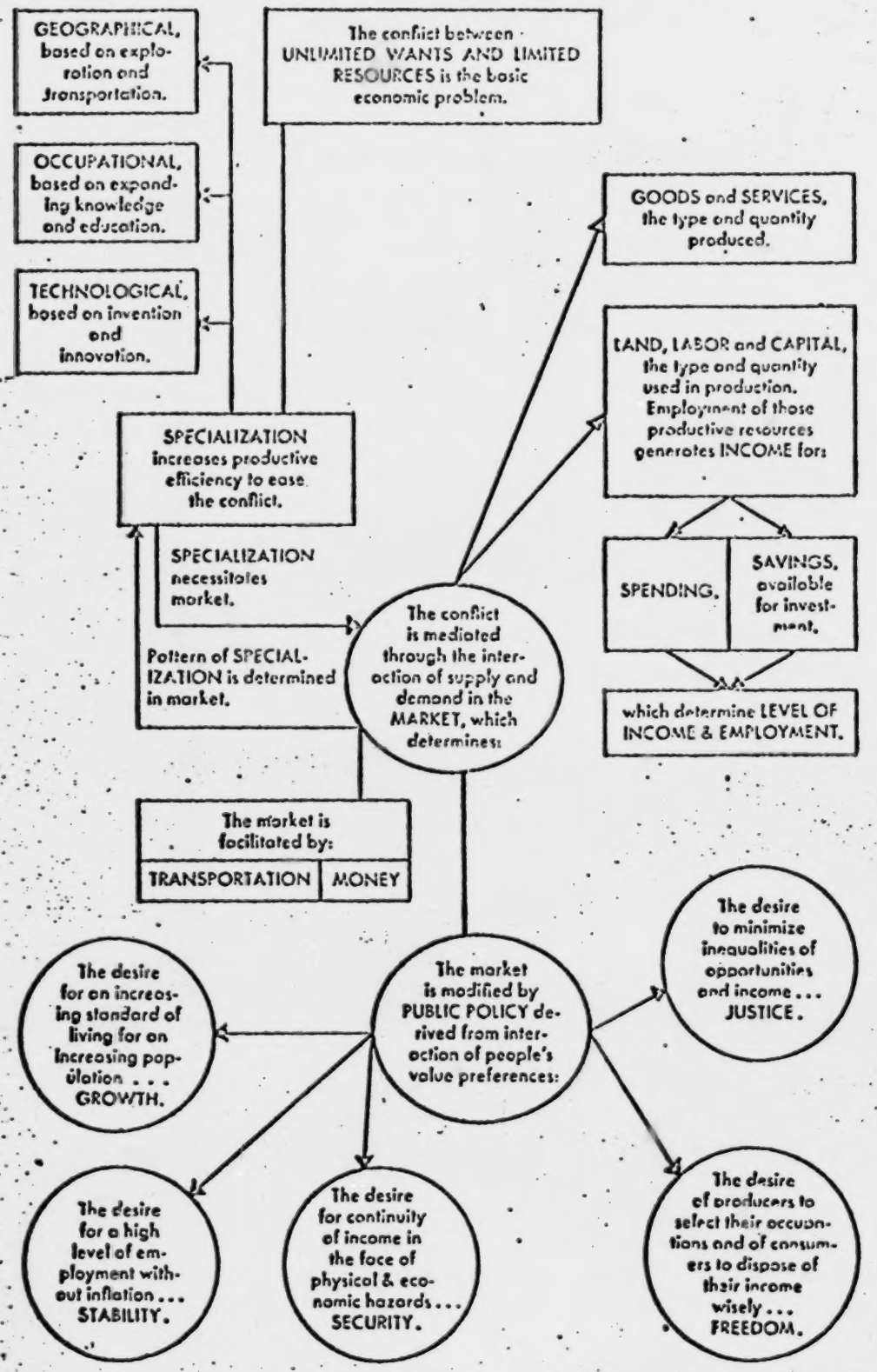

GEOGRAPHICAL, based on exploration and transportation.
OCCUPATIONAL, based on expanding knowledge and education.
TECHNOLOGICAL, based on invention and innovation.
The conflict between UNLIMITED WANTS AND LIMITED RESOURCES is the basic economic problem.
GOODS and SERVICES, the type and quantity produced.
LAND, LABOR and CAPITAL, the type and quantity used in production. Employment of those productive resources generates INCOME for:
SPENDING.
SAVINGS, available for investment.
which determine LEVEL OF INCOME & EMPLOYMENT.
SPECIALIZATION increases productive efficiency to ease the conflict.
SPECIALIZATION necessitates market.
Pattern of SPECIALIZATION is determined in market.
The conflict is mediated through the interaction of supply and demand in the MARKET, which determines:
The market is facilitated by:
TRANSPORTATION
MONEY
The market is modified by PUBLIC POLICY derived from interaction of people's value preferences:
The desire for an increasing standard of living for an increasing population . . . GROWTH.
The desire to minimize inequalities of opportunities and income . . . JUSTICE.
The desire for a high level of employment without inflation . . . STABILITY.
The desire for continuity of income in the face of physical & economic hazards . . . SECURITY.
The desire of producers to select their occupations and of consumers to dispose of their income wisely . . . FREEDOM.

Figure 2

SYSTEMS ANALYSIS OF POLITICAL LIFE

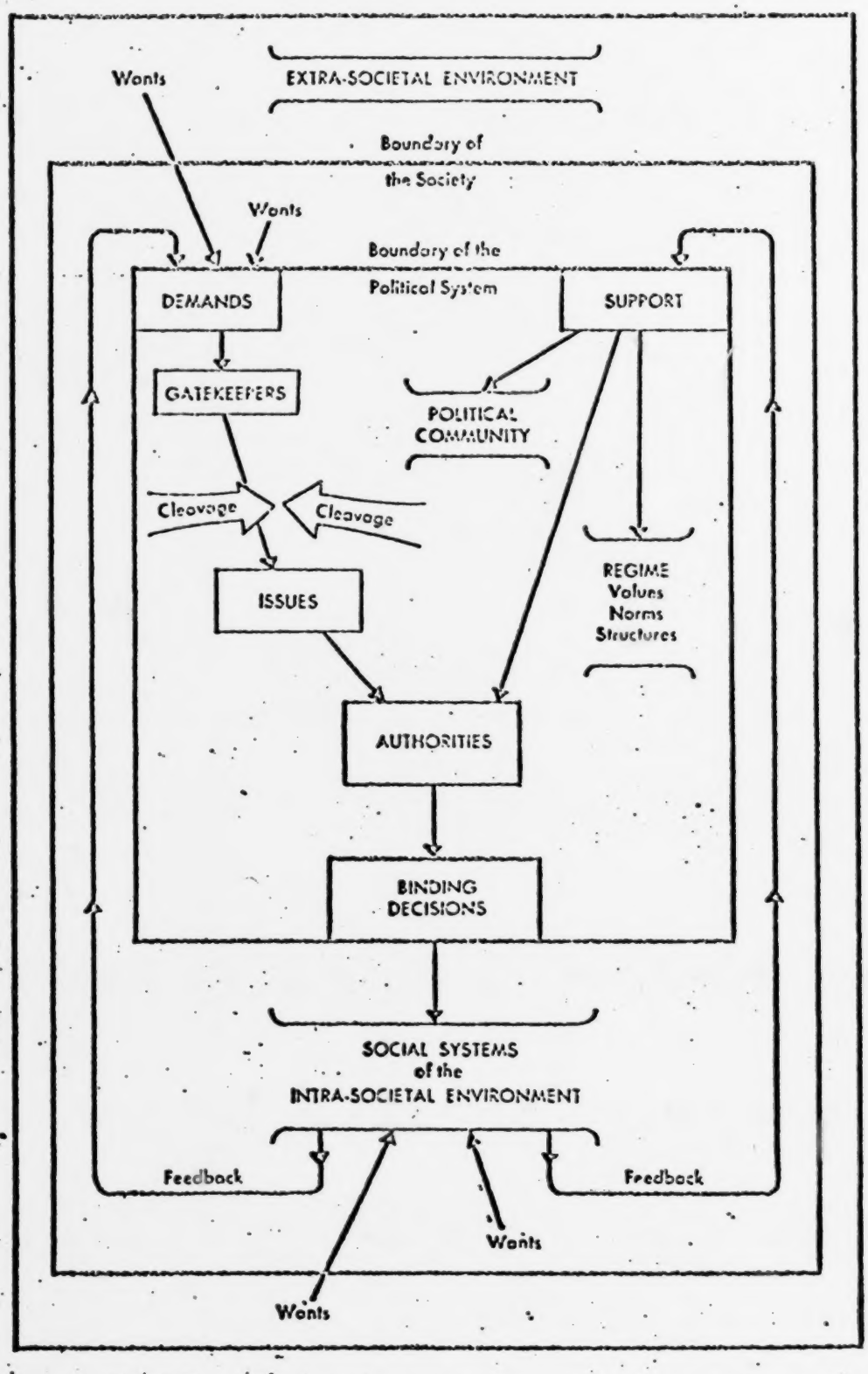


Figure 3

FUNDAMENTAL IDEAS OF SOCIOLOGY

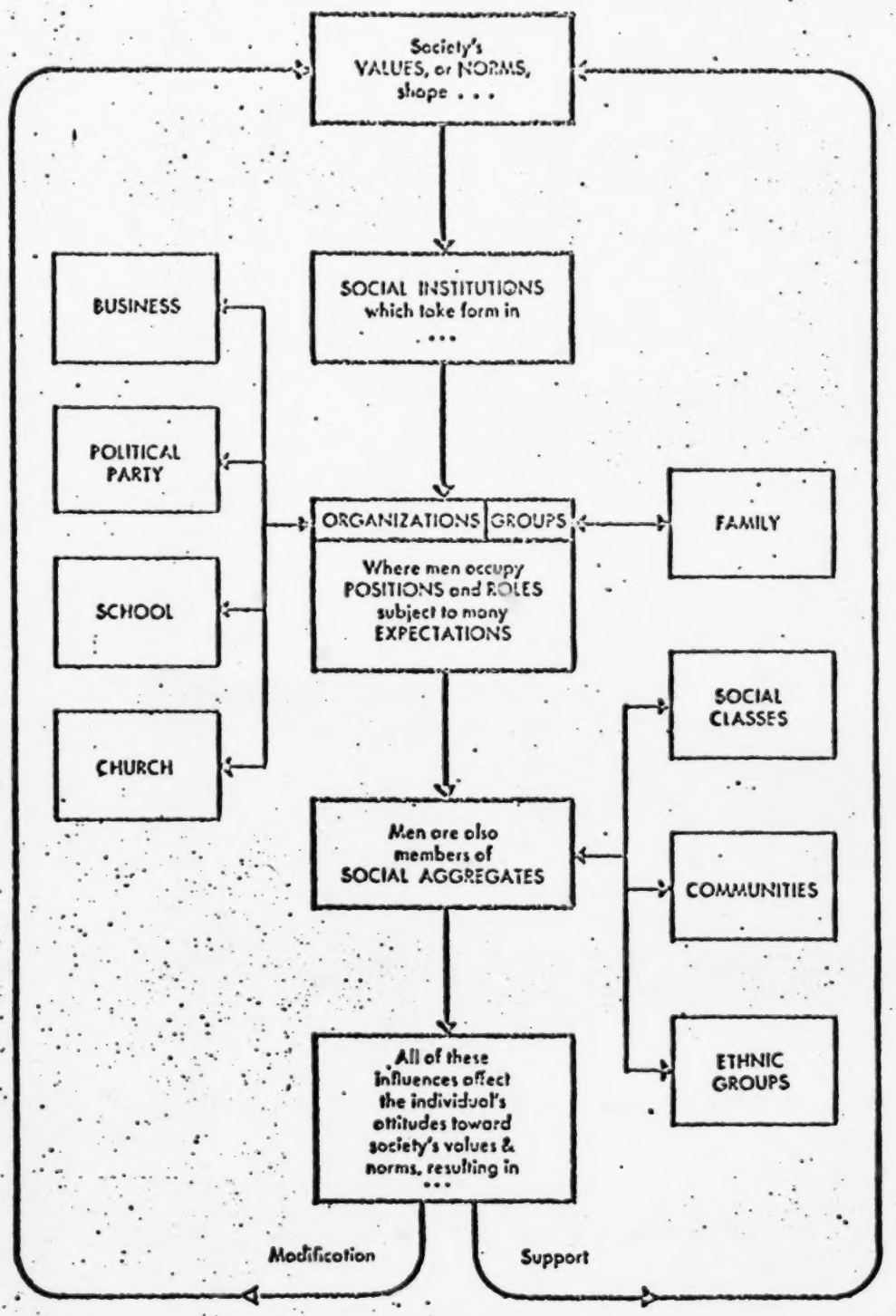
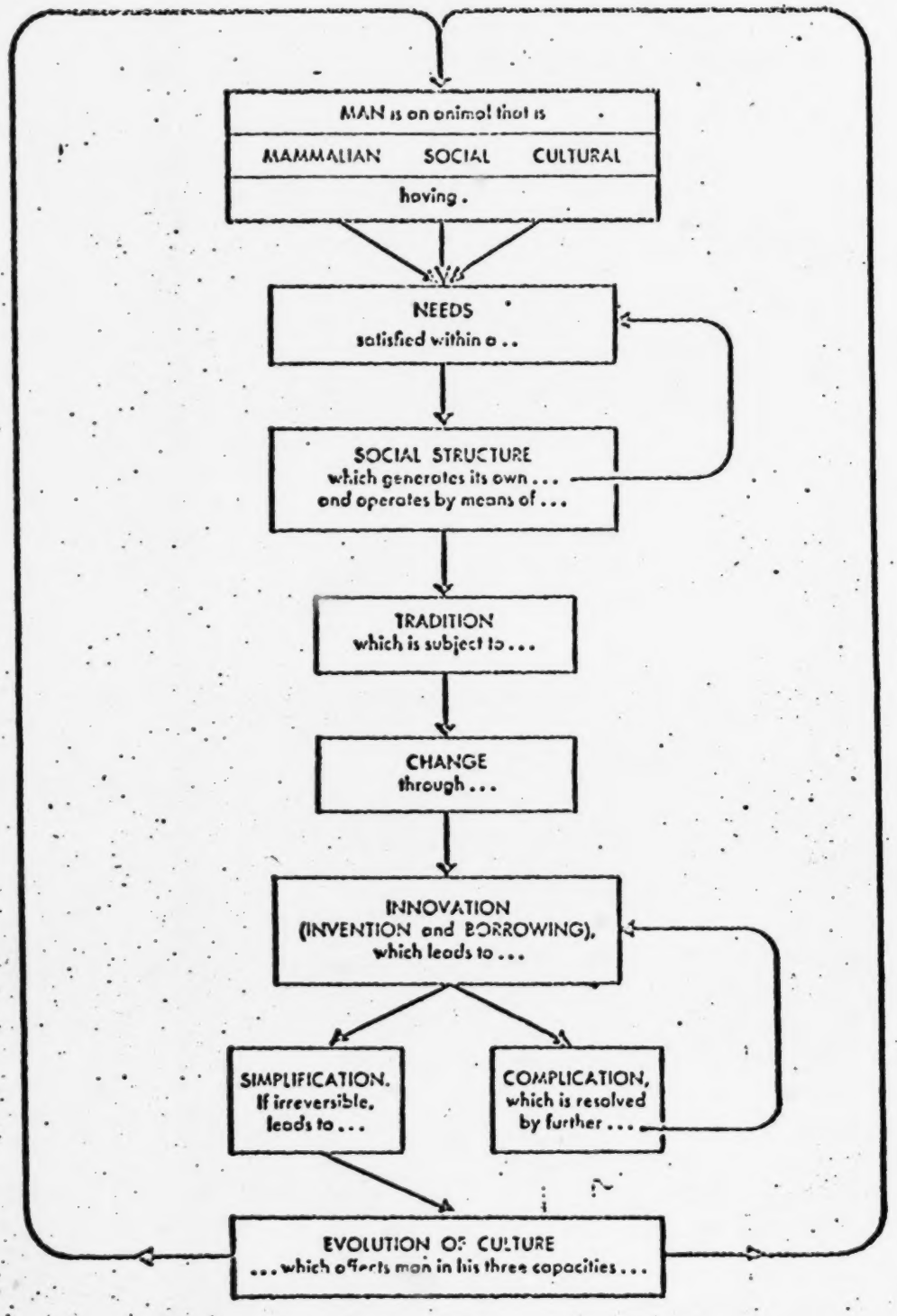


Figure 4

FUNDAMENTAL IDEAS OF ANTHROPOLOGY



THE WORLD AS A SYSTEM

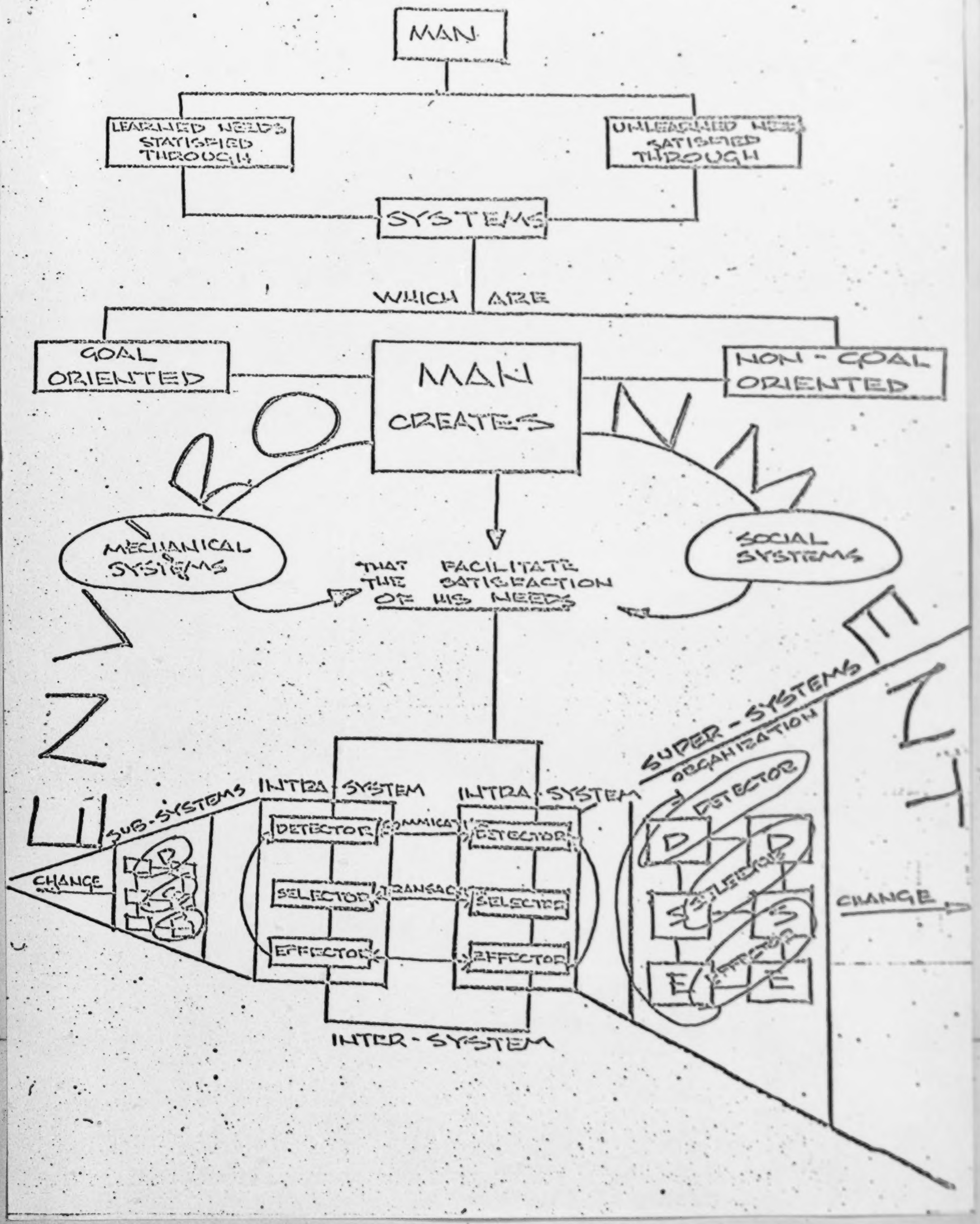


Figure 6

KNOWING AND WAY OF KNOWING
A Proposed Course For Future Teachers (Sophomore Year)

NUMBER WEEKS

2 — STRUCTURE OF ECONOMICS

3 — LABORATORY Involving

Social Reality	Problem Solving	Analytical Tools	K-12 Grades	Time	Space	Systems	Future
				ORIENTATION			

3 — STRUCTURE OF POLITICAL SCIENCE

4 — LABORATORY Involving

Social Reality	Problem Solving	Analytical Tools	K-12 Grades	Multi-Disciplines	Time	Space	Systems	Future
					ORIENTATION			

4 — STRUCTURE OF SOCIOLOGY

4 — LABORATORY Involving

Social Reality	Problem Solving	Analytical Tools	K-12 Grades	Multi-Disciplines	*Time	Space	Systems	Future
					ORIENTATION			

5 — STRUCTURE OF ANTHROPOLOGY

4 — LABORATORY Involving

Social Reality	Problem Solving	Analytical Tools	K-12 Grades	Multi-Disciplines	Time	Space	Systems	Future
					ORIENTATION			

3 — CULMINATING LABORATORY

*Rotating Committee Assignments